ZERO BEAT

http://hcra.org

April 2017

Special points of interest:

Next Meeting:
May 5th
Go Boxes

Steve Davidson
Manager HRO,
Salem, NH

- Visit the HCRA facebook page.
- Don't forget to check out hcra.org
- Visit Summits on the Air
- Visit POTA413 facebook page

HELP WANTED!

We need help for Field Day
Visit
hcra.org/field-day-2017
for more information

Inside this issue:

April's Meeting

Join us Friday April 7th at 7:30, in the Holyoke Medical Center Auxiliary Conference Center .

SHOW N' TELL

Have a Ham Radio related project you have been working on? Bring it to our April meeting, and share with other members. You may go home with a prize!

For directions to The Holyoke Medical Center Auxiliary Conference Center:

http://www.hcra.org/meeting-location/

Alex Rock AB1FC Wins the 2016/2017 HCRA Raffle

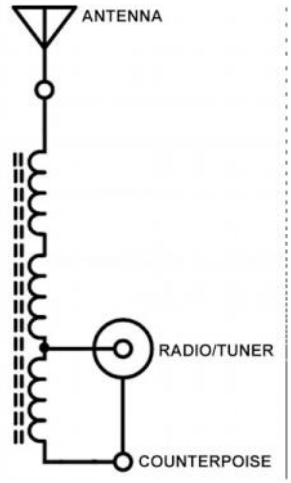
Jeff NT1K President of the HCRA Presents the Elecraft KX2 to Alex Rock AB1FC, the winner of this years raffle, at the MTARA Hamfest. Alex purchased the winning ticket at the Hamfest.

Playing with end-fed wire antennas and 9:1 ununs

Daniel M Romanchik KB6NU

For the past couple of weeks, I've been playing with end-fed wire antennas. Before I get into the nitty-gritty details, let me first make a distinction between end-fed half-wave antennas, such as the ones sold by LNR Precision and end-fed wires that use some kind of tuning to achieve a 50 Ω output impedance.

End-fed, half-wave antennas (EFHWs) are a half-wavelength long and are resonant antennas on the band of interest. They use some kind of matching network to trasnsform the very high impedance at the end of a half-wave wire to about 50 Ω. Generally, they are not usable on bands for which they are not a half wavelength long. You can't, for example, generally use a 40m EFHW antenna on 20m.



End-fed wire antennas are a different beast. They are not a half-wavelength long, meaning that, if you choose the length of the radiator wisely, the impedance at the end of the wire will not be as high as the impedance of a half wavelength long wire.

In many cases, the impedance can be transformed with the help of a 9:1 unun (unbalanced input to unbalanced output). See the figure at right. A 9:1 unun is a transformer that reduces the impedance at the input by a factor of 9. So, if you connect a length of wire that presents an impedance of about 450 Ω to the input, you'll get an impedance of about 50 Ω on the output.

In fact, the 9:1 unun that I built is actually an autotransformer. Here's a video that talks a little bit about autotransformers.

It's relatively easy to build a 9:1 balun. One of the most common designs is to wind nine turns of a trifilar winding around a toroid core. Trifilar means that there are three wires wound simultaneously around the core. I'm not sure why there are nine turns, instead of say eight or ten, but I suspect that it's a compromise between size and coupling. Nine turns yields sufficient coupling to ensure that the impedance transformation will take place without taking up too much space.

By the way, the ratio 9:1 isn't really magic. You could choose to build a transformer with 7:1 or 12:1 ratio, but it just so happens that it's much easier to build a 9:1 transformer than a 12:1 transformer.

I built one on a T80-2 powdered iron core, using some 22-ga. wire that I scavenged from some four-conductor cable (see photo at left.) I got a little bit lucky in that the T80 core has a diameter just big enough to accommodate nine turns. Using different colored wires (red, black and white) made it easier to wire it up properly.

I didn't do much engineering when it came to selecting the parts. I just happened to have a little bag of T80-2 cores that I'd purchased cheap at Dayton a couple of years ago. The short length of four-conductor cable was something that I'd salvaged from some previous project and had just thrown into my "wire box." I haven't done the calculations, but as built, I'd guess that it's good up to 25 W or so. If you're shooting for an unun to handle more power, then go with a T130 core and heavier gauge wire.

There's also some question about which type of core to use. Some people wind their unun on ferrite cores instead of powered iron cores. One manufacturer even goes so far to say that they use a "custom mix" instead of one of the standard ferrite mixes (although I find it hard to believe at the relatively low quantities that they must be purchasing that they're getting a truly custom mix). My friend, Thom, W8TAM, built his 9:1 unun using an FT82-61 core, and it works great. G3TXQ has performed a number of experiments with different core types, and with the antenna he used, found Type 2 powdered iron cores to be preferable.

So, how long a wire should you use for the antenna? It really depends on what bands you want to work. Mike, AB3AP, has calculated the lengths that give good results on various bands. Jack, VE3EED (SK), has also made this calculation. They differ slightly because VE3EED used the center of the bands in his calculations, while AB3AP used the center of the CW portion of the bands.

Last Saturday, I played around with an end-fed with a 36-ft. radiator and counterpoises of 13-ft. and 25-ft. To be honest, I wasn't really happy with any of the configurations. The best I was able to do was achieve an SWR of 2:1 on 40m with the 36-ft.

radiator and the 13-ft. counterpoise. Neither configuration yielded a satisfactory match on 20m.

Thom, on the other hand, used his 9:1 unun with a 30-ft. radiator and got fantastic results. He got great signal reports from an NPOTA station, a special event station in Georgia, and an operator working aeronautical mobile over Nebraska. So, there's more experimentation in my future.

Update 8/19/2016

As I mentioned earlier, I wasn't very happy with the results I was getting with the 9:1 unun that I had built earlier. So, yesterday evening, I went over to W8TAM's house to compare his ununs to the one I just built. As I noted above, Thom had great success with his a couple of weeks ago.

The first thing we did was check that I had wired it properly. The only thing that we found is that instead of nine turns, I had only wound eight turns on the T80-2 core. I didn't think it would make that big a difference, but Thom had a lot of wire, so we rewound the unun, this time making sure that I wound nine turns.

We connected two 1 kΩ resistors in parallel (to give us an input impedance of 500Ω) from input to ground and measured the output impedance on Thom's Rig Expert AA-170 antenna analyzer. As I suspected, the extra turn made little difference. The SWR was 6.5:1 on 7150 kHz.

(As an aside here, I have to comment on the AA-170 antenna analyzer. In a word, it's fantastic. One of the functions we used, for example, measures the SWR of antenna at the midpoints of all the amateur bands. This function is just perfect for testing the frequency response of baluns and ununs. It's also graphs SWR across a frequency range. And, on top of all that, it's about half the weight of my Palstar antenna analyzer. I think I'm going to dump the Palstar and get a RigExpert.)

At that point, we figured that the only thing it could be was the core. Fortunately, Thom had an FT82-61 ferrite core that he'd used to wind a QRP 9:1 unun. We cut three more lengths of wire, wound the unun, connected the 500 Ω load and measured the SWR.

WOW! The thing worked exactly as predicted! Here are the measurements:

Frequency	T80-2	FT82-61
7150	6.5	1.2
10125	4.1	1.1
14175	2.9	1.0
18118	2.3	1.1
21225	2.0	1.2

This was very puzzling and aggravating. As I noted above, G3TXQ found that the #2 powdered iron cores gave the best results. After a little Googling, I also found another ham, VK6SYF, who had success with a #2 core (http://vk6ysf.com/unun_9-1.htm). My friend KA8BMA built one using a T106-2 core, and it seems to be working right.

I bought the cores from a reputable dealer, so I don't think that they're bad, but I don't know how else to account for the difference in performance. If you have any ideas on that, I'd love to hear them.

After getting that out of the way, we got into a discusssion of whether or not I really needed a 9:1 unun at all. The two radios that I use for portable operations are the Elecraft KX1 and the Elecraft KX3, both outfitted with antenna tuners. Both of them seem able to tune just about any length of wire not an exact half-wavelength, and that being the case, why bother with the 9:1 unun? The unun would just introduce more loss into the system.

Sounds like more experimentation is in order.

UPDATE 8/22/16

A couple of days ago, I e-mailed G3TXQ about my lack of success building a 9:1 unun with a T80-2 core, even though he seemed to have the best success with a #2 core. He said, "Using #2 cores will not give you a very accurate 9:1 impedance transformation, particularly if you use something as small as T80 size." I found this kind of puzzling as he had said that in his experiments, he got the best results with a #2 core.

Anyway, since my friend Rich, KA8BMA, had wound his 9:1 unun on a T106-2 core, I thought I'd try this, too, and I just happened to have one in my box o' toroids Well, wouldn't you know it, the measurements are much, much better with the T106-2 core than they were with the T80-2 core.The SWR measured 1:1 on 20m and 17m, something like 1.8:1 on 40m, and 1.5:1 on 15m.

The frequency response of this unun isn't as flat as the unun wound on the ferrite core, but it is certainly much better than the unun wound on the T80 core. The T106 core is only a quarter inch larger in diameter than the T80 core (1.06-in. vs. 0.80-in.). I wouldn't have thought that a quarter-inch in diameter would make that much difference, but it did.

In researching this further, I discovered why. According to VK2TIP's explanation of wide-band RF transformers, the impedance of the primary winding should be at least fives times the input impedance. Since my test input impedance is 500 Ω, that means the impedance of my primary winding should be at least 2500 Ω.

Using the online calculator at toroids.info, at a frequency of 14 MHz, and a primary winding of 27 turns, I get the following values:

Size	A_L	Ω
T80-2	5.5	352.7
T106-2	13.5	865.7
FT82-61	79	5066

The first thing to notice is that the inductance factor, A_L, for the T-106-2 core is nearly twice that for the T80-2 core. I erroneously thought that they would be the same since the core material was the same. The higher value yields a higher inductance, and therefore, a better transformer.

Even so, the inductance is far from five times the input impedance. That's why the FT82-61 ferrite core works much better for this application. With an A_L of 79, the primary has an impedance of more than 5000 Ω, which gives a very good transformation.

As Steve, G3TXQ, pointed out in his e-mails to me, it really doesn't matter if the impedance transformation is exactly 9:1 or some other value—especially if you will also be using an antenna tuner. In that case, winding your unun on a T106-2 core—or even better a T157-2 core that has an A_L of 14—will work OK. If you're like me, though, and want a 9:1 unun to actually give you a 9:1 transformation over most of the HF bands, then use a ferrite core.

One final note: A very nice feature of the toroids.info calculator is that it not only calculates the impedance for a particular number of windings, but also the length of the wire that you'll need. On my first attempt at winding an unun on a T106-2 core, I greatly underestimated how much wire I needed and ended up throwing away that wire. I could have avoided doing that if I'd used the calculator.

After a brief interlude the Swap & Sell Table returns to HCRA

Thanks to the volunteering spirit of George/KC1V and Paul/NF1G Swap&Sell will be back starting with the April 7th, 2017 meeting.

First debuting as a regular part of our meetings January 2016 it's been notably absent so far in 2017. George and Paul will rectify the absence and once again Swap & Sell is a monthly feature at all our meetings. Now you have yet another reason to attend besides interesting presentations, good friends, club raffles and of course Bruce's Donut Shop. How cool is that?

This only works with support from our members. KC1V and NF1G are only there to keep an eye on the tables, help out where necessary and tell you who to give the money too! It's up to you to do the rest! Before you come to a meeting take a look around the shack or in your junque box for an item or two that really should be "moved on down the line". Price it appropriately and go home with some extra cash in your pocket.

Every month we will have a table in the back of the room where you can place items to sell, perhaps trade, or even donate to HCRA – the choice is yours. HCRA made over $300 in 2016 thanks to your generosity. We will provide the table, the ability to feature your item(s) on our Facebook page prior to the meeting and even labels to affix to your treasures. In return we would appreciate a suggested donation of 10% of the final selling price. Quick, easy and much cheaper the eBay or PayPal. Simple enough?

That being said there are a few guidelines we would appreciate you following:

1. Label each and every item with your Name/Call and a selling price. We will have labels and Sharpies available if something falls off between your shack and the table.
2. Any item not sold returns home *WITH YOU*, including donated items. In other words we're not offering a trash removal service ☺
3. It isn't necessary to remain behind the table the entire time. Experience says items sell better if you're there to answer questions but the choice is yours.
4. Drive some interest, advertise! Post a photo of what you're bringing on our Facebook page!
5. We do not collect money for you; that's your responsibility.
6. At the end of the evening please make your donation to the club Treasurer before leaving.

I think that's simple enough, don't you? Experience indicates items like PC's, printers, monitors, etc. are very difficult to sell. You may want to consider other venues for such items. Please try and keep your item selection to things our members may want to purchase and you'll go home with money in your pockets.

The Swap & Sell Table is an exciting part of our monthly meetings. It all depends on you, our members, if it continues to be a success. We provide the opportunity and the space, the rest is up to you!

As always, thanks for your support of HCRA

Jim Mullen KK1W

FROM THE SHACK

JEFFERY BAIL NT1K

Field Day 2017 Webpage is now live

Field day is just a couple months away and it will be here before you know it. In recent years, HCRA held the event at the School Street Park in Agawam MA. It's easily located right off the highway and the town of Agawam and their parks and rec dept. have gone out of their way to make us welcomed. We couldn't ask for anything better except for having nice weather.

HCRA uses Field Day to promote amateur radio to the public here in the valley. We put on a very decent display of amateur radio with our AB-577 portable towers with multi-band directional antennas. It's very impressive and we've attracted many park goers and those driving on rt. 57 to come over and ask questions. We also have a very great time. Many people get together and work together to accomplish a goal. Last year Allen Dove (AB1XW) cooked up quite a feast to feed those who were on site. Faye Krainson also helped with breakfast. It was a good time.

However, this cannot be done without volunteers. We need you to help make Field Day possible. We need help with setting up antennas, towers, shelters, operating, cooking, and many other things. We would also need help with the tear down and cleanup. This is very important! Without volunteers, Field day will not be possible. We've setup a website where you can see what positions are available. Please visit the website and volunteer

http://www.hcra.org/field-day-2017/

Show and Tell

April is our annual "Show And Tell" meeting. We have many members who would like to show off their project(s) but not worth having an entire meeting dedicated to it. It can be something you made or something you purchased. It's an excellent way to spread the word and maybe get other members involved. We even have some prizes for the top entries that will be voted on by the members in the audience. If you do bring in something, please limit your time so the other members can have a chance to show off their time.

HCRA Raffle

It's been many months and it's now over. At the MTARA ham fest in early March, HCRA sold many tickets. I would like to personally thank everyone who purchased a ticket. Even more so to those who purchased many tickets throughout the months. Even though there could be only one winner, the money generated from the raffle will go to HCRA activities. This year the winner was Alex Rock (AB1FC). He seems to be enjoying the radio very much.

At the March meeting and on our Facebook group, I've asked the members what they would like to see for the next raffle. We've had suggestions about raffling an amplifier, FT-450D, UHF/VHF Mobile and Handheld package, another KX2, Flex-1500, and a FTDX-1200 and other items. We're still looking for ideas that members and public are willing to purchase tickets for. We would like to keep the total price to close around $1000.

Zerobeat Archives

Have you checked out our Zerobeat archives? We've added 11 editions from 1958 to our archives. There are still quite a few editions that still need to be published. David Isham (KB1MU) has done an excellent job with digitizing every copy he had of Zero Beat. We now have issues going back to the late 1940's. We still have work to do. Dave did the hard part but we still have to combine pages, apply optical character recognition (OCR) and optimize the pages to allow for publishing on our website.

The archives really shows the history of not only HCRA, but the history of amateur radio here in the pioneer valley. It's a very interesting read. If you can spare a moment, please check out the archives

http://www.hcra.org/zero-beat-archive/

New England QSO Party

Jeffrey Bail NT1K

We're about a month away from the New England QSO Party (NEQP). For those who are un-aware, NEQP is a contest where stations from all around New England will be on attempting to work every county in New England and making as many contacts as possible. It's an excellent contest for the beginner because it's not a serious compared to CQ WW and it allows for sleep time. It's one of the more popular QSO parties because there are some rare locations that will be active and since most of us live in New England, we will be the wanted stations.

NEQP started in 2002 as way to include more states like ME and RI that haven't really had their own QSO parties. It was also a way to include more counties as multipliers instead of just the 14 that Massachusetts had. It made the QSO party much more attracting. The organizers ended up choosing the first weekend of May however it would possibly interfere with the hamfest at Deerfield NH (AKA Hosstraders/NEAR-fest). Instead of the typical 0:00z start time that you would see in most contests, it starts at 05:00z (4pm Local). This allows for those attending NEARfest to also participate. The organizers also included a sleep break in the contest on Sunday from 1am until 9am. This allows the operators to get some sleep and fuel for when the contest resumes.

Another great thing about NEQP is that it's not the only QSO party on the air that weekend. There is also the Indiana QSO party, Delaware QSO party, 7th area QSO party (WA, ID, OR, NV, MT, WY, UT, AZ) and there is also an Italian DX. Plenty of contests you can win with just submitting one log.

There are many awards available to those participating. There are awards for US, CA, DX, New England, State, Club, and even county awards. Did you know that HCRA sponsors a plaque for the single operator who has the highest score?

Here are Hampden County's previous winners:

2015 - Jeffrey Bail (NT1K)

2014 - Chris Scibelli (NU1O)
2013 - Mike DeChristopher (N1TA)

2012 - Dave Cayen (WN1E)

2011 - Jeffrey Bail (NT1K)

2010 - Jim Mullen (KK1W as WB1Z)

2009 - Jim Mullen (KK1W as WB1Z)

2008 - Ed Lacombe (KB1NWH as W1NY)

2007 - Kyle Ebersold (KB1MNN)

2006 - Rick Lindquist (N1RL)

2005 - Dave Cayen (WN1E)

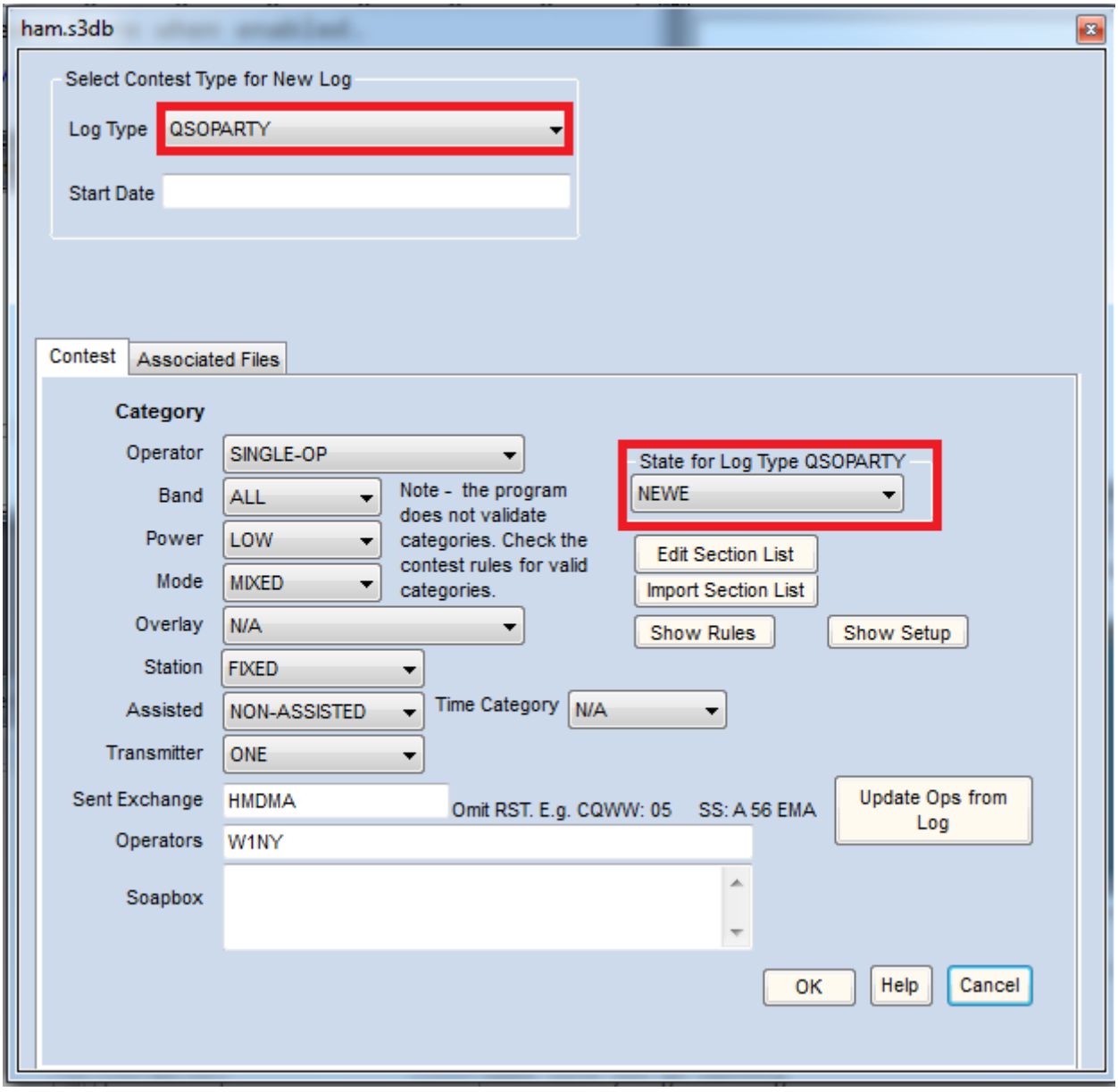
HCRA as a club usually has a large presence on the air during NEQP. Let's keep that up by not only getting on the air but by also submitting a log with "Hampden County Radio Association" set as the club in the Cabrillo file. There have been a couple years where we came close to beating CTRI and YCCC with our combined scores. In 2015 we had 12 (including 4 rover) operators in Hampden County that submitted logs. I know that for 2017 we can improve our numbers. Let's get out there and show the rest of New England what we can do!

Visit the New England QSO Party website for more information about NEQP
https://www.neqp.org/

Setting up N1MM For NEQP

Jeffrey Bail NT1K

Since it's possible to participate in multiple contest during the same weekend, it's suggested that you setup N1MM+ for it. When you load N1MM+, make sure it's updated. When updated, go the file menu and click "Add New Log To Database". Choose that you want to do a "QSO PARTY". When selected fill out the information requested and make sure to choose "NEWE."



Make to select "Hampden County Radio Association" as your club under Config-Change Your Station data menu.

More to come next month! Stayed tuned!

W1AW Spring /Summer 2017 Operating Schedule

SB QST ARL ARLB011
ARLB011 W1AW 2017 Spring/Summer Operating Schedule

Morning Schedule:
Time Mode Days
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1300 UTC (9 AM ET) CWs Wed, Fri
1300 UTC (9 AM ET) CWf Tue, Thu

Daily Visitor Operating Hours:

1400 UTC to 1600 UTC - (10 AM to 12 PM ET)
1700 UTC to 1945 UTC - (1 PM to 3:45 PM ET)

(Station closed 1600 to 1700 UTC (12 PM to 1 PM ET))

Afternoon/Evening Schedule:

2000 UTC (4 PM ET) CWf Mon, Wed, Fri
2000 " " CWs Tue, Thu
2100 " (5 PM ET) CWb Daily
2200 " (6 PM ET) DIGITAL Daily
2300 " (7 PM ET) CWs Mon, Wed, Fri
2300 " " CWf Tue, Thu
0000 " (8 PM ET) CWb Daily
0100 " (9 PM ET) DIGITAL Daily
0145 " (9:45 PM ET) VOICE Daily
0200 " (10 PM ET) CWf Mon, Wed, Fri
0200 " " CWs Tue, Thu
0300 " (11 PM ET) CWb Daily

Frequencies (MHz)

CW: 1.8025 3.5815 7.0475 14.0475 18.0975 21.0675 28.0675 147.555
DIGITAL: - 3.5975 7.095 14.095 18.1025 21.095 28.095 147.555
VOICE: 1.855 3.990 7.290 14.290 18.160 21.390 28.590 147.555

Notes:
CWs = Morse Code practice (slow) = 5, 7.5, 10, 13 and 15 WPM
CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 and 10 WPM
CWb = Morse Code Bulletins = 18 WPM
CW frequencies include code practices, Qualifying Runs and CW bulletins.

DIGITAL = BAUDOT (45.45 baud), BPSK31 and MFSK16 in a revolving schedule.

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds.

On Tuesdays and Fridays at 2230 UTC (6:30 PM ET), Keplerian Elements for active amateur satellites are sent on the regular digital frequencies.

A DX bulletin replaces or is added to the regular bulletins between 0000 UTC (8 PM ET) Thursdays and 0000 UTC (8 PM ET) Fridays.

Audio from W1AW's CW code practices, and CW/digital/phone bulletins is available using EchoLink via the W1AW Conference Server named "W1AWBDCT." The monthly W1AW Qualifying Runs are presented here as well. The CW/digital/phone audio is sent in real-time and runs concurrently with W1AW's regular transmission schedule.

All users who connect to the conference server are muted. Please note that any questions or comments about this server should not be sent via the "Text" window in EchoLink. Please direct any questions or comments to w1aw@arrl.org.

In a communications emergency, monitor W1AW for special bulletins as follows: Voice on the hour, Digital at 15 minutes past the hour, and CW on the half hour.

FCC licensed amateurs may operate the station from 1400 UTC to 1600 UTC (10 AM to 12 PM ET), and then from 1700 UTC to 1945 UTC (1 PM to 3:45 PM ET) Monday through Friday. Be sure to bring your current FCC amateur license or a photocopy.

The complete W1AW Operating Schedule may be found on page 105 in the April 2017 issue of QST or on the web at, http://www.arrl.org/w1aw-operating-schedule .
NNNN
/EX

DOTS & DASHES: Things I can't think where to put, but are interesting.

Interesting Special Events for April

There are a couple of interesting special event during the month of April:

On April 11th from 1200z till 2100z special event station NY2SP/100 will be active celebrating the 100th anniversary of the New York State Police. Information can be found on qrz.com/db/ny2sp
April 15th-30th the Michigan State Police will also be celebrating their 100th anniversary. W8P will be on the air on 3850,7185, 14226, & 21.300. QSL information can be found on QRZ.com

Two special events will be operating here in Massachusetts on the 22nd KM1CC will be celebrating International Marconi Day from The Cape Cod Nation Seashore. They will be operating on 7035, 14034, 14260, & 18080. More information can be found on KM1CC facebook page. Boy Scout station W1BSA will be operating from the Battleship U.S.S Massachusetts on 7259, & 14.259. Information can be found at www.w1mv.org

FCC Issues Amateur Radio Service Rules for 630 Meters and 2,200 Meters

It's been a long time coming, but the Amateur Service will get two new bands in the near future. The FCC on March 28 adopted rules that will allow secondary Amateur Radio access to 472-479 kHz (630 meters) and to 135.7-137.8 kHz (2,200 meters), with minor conditions. The FCC *Report and Order* (***R&O***) spells out the details. It allocates 472-479 kHz to the Amateur Service on a secondary basis and amends Part 97 to provide for Amateur Service use of that band as well as of the previously allocated 135.7-137.8 kHz band. The *R&O* also amends Part 80 rules to authorize radio buoy operations in the 1900-2000 kHz band under a ship station license.

The fact that the new rules contain a new information-collection requirement — notification of operation to the UTC — makes it difficult to guess at an effective date. The FCC R&O says the Office of Management and Budget (under the Paperwork Reduction Act) must first approve the information-collection requirements (in §97.303[g][2]). Once that happens, the revised Part 97 rules sections will become effective after the FCC publishes a notice in *The Federal Register* "announcing such approval and the relevant effective date."

Interesting Ham Radio Web Site:

Did you ever think about building your own power distribution center, like a "Rig Runner" sold by West Mountain Radio? Here is a website that describes a build it yourself kit available to order. Looks interesting, and at a good price.

AREA SWAP/HAMFESTS:

Apr 8	Seacoast Amateur Radio Flea Market	Hampton, NH	http://www.w1wqm.org
Apr 15	Portland Amateur Wireless Hamfest	South Portland, Me	http://www.qsl.net/pawa/
Apr 16	Flea at MIT	Cambridge, Ma	http://www.swapfest.us
Apr 21	Eastern VHF/UHF/Microwave Conference	Manchester, Ct	http://newsvhf.com/vhfconf.html
Apr 22	Radio Association of Norwich Swap	Gales Ferry, Ct	http://www.rason.org/
May 5/6	NEARFest XXI	Deerfield, NH	http://www.near-fest.com/
May 13	East Greenbush ARA Hamfest	East Greenbush, NY	https://www.egara.club/events
May 20	Southern Berkshire ARC Hamfest	Goshen, Ct	http://www.sberk.org
Jun 10	Vintage Radio & Comm Museum of CT	Windsor, Ct	http://vrcmct.org/
Sep 8/10	New England Convention	Boxborough, Ma	http://www.boxboro.org/

April's Contests:

Apr	1	Mississippi QSO Party	http://www.arrlmiss.org	CW, Ph, Dig
	1	Missouri QSO Party	http://www.w0ma.org	CW, Ph, Dig
	1	Texas State Parks on the Air	http://www.tspota.org	CW, Ph, Dig.
	8	New Mexico QSO Contest	http://www.newmexicoqsoparty.org	CW, Ph, Dig
	8	Georgia QSO Party	http://www.georgiaqsoparty.org	CW, Ph, Dig
	15	Michigan QSO Party	http://www.miqp.org/rules.htm	CW, Ph
	15	Ontario QSO Party	http://www.va3cco.com/oqp	CW, Ph
	16	ARRL SSB Rookie Roundup	http://www.arrl.org/rookie-roundup	SSB
	22	Nebraska QSO Party	http://www.qcwa.org/chapter025.htm	CW. Ph, Dig
	29	10-10 Inter. Digital Spring Contest	http://www.ten-ten.org	Digital
	29	Florida QSO Party	http://www.floridaqsoparty.org	CW, Ph

Local happenings

Sundays: 0845: Western Mass Emergency Net 146.94, PL 127.3 - W1TOM/R

First Monday: Southwick Regional RACES Drill, 1845, 146.49 Simplex

Mondays: 1930: HCRA 10m Net 28.375

Tuesdays: 1930-2000: 146.94, PL 127.3 - W1TOM/R - Hampshire County Emergency Net

Wednesdays: 1930: MTARA Info net 146.94, PL 127.3 - W1TOM/R - includes NTS Net

2000: MTARA Swap net: 146.94, PL 127.3 - W1TOM/R

2000: MTARA Simplex Net - starts on 146.94 - PL 127.3, then goes to 146.42 direct (simplex) Usually starts immediately following the swap net.

Thursdays: 2100: Weather Net (Roger, K1PAI Net Control), 1st Thursday of every month: 147.090 MHz, All other Thursdays: 147.000, PL 127.3 - W1TOM/R

Fridays: 1200: BB's (Brown Baggers Luncheon)
Munich House
13 Center Street
Chicopee, MA 01013
Expect between 6 and 12 attendees every Friday. Good food, great company!

Club meetings & VE sessions

1st Friday of the month 7:30 PM, HCRA Club Meeting, Holyoke Hospital Auxiliary Conference Center, 575 Beech St. Holyoke MA 01040 (no meetings held in July or August.) **http://www.hcra.org/meeting-location/**

3rd Friday of the month 7:30 PM, MTARA Club meeting, Red Cross building, 150 Brookdale Dr. Springfield, Mass. (no meetings held in July or August)

4th Friday of the month 6:00 PM, Technician, General, and Extra Class License Exams, Holyoke Hospital Auxiliary Conference Center, 575 Beech Street, Holyoke, Mass. Hosted by the Western Mass VE Team (WMVET). Contact: David Cote, w1fab@arrl.net

Third Monday of the month 7:00 PM, Franklin County Amateur Radio Club meeting, Greenfield Community College. (no meetings held in July or August) http://www.fcarc.org/

4th Monday of February, May, August, November 7:00 PM, FCARC VE Exams, Unitarian Church, Main Street, Northfield http://www.fcarc.org/

Join the ARRL or renew your membership!

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- Amateur Radio Emergency Service
- Hamfests and Conventions
- Volunteer Examiner Coordinator Program

http://www.arrl.org/membership

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Here is your exciting copy of Zero Beat!

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